CLAIMS:

1. (Original) A lithium-metal-oxide electrode compositions and structures having a layered crystallographic structure and the general formula $Li_xMn_yM_{1-y}O_2$ where $0 \leq x \leq 0.20$, $0 < y < 1$, manganese is in the 4+ oxidation state and M is one or more transition metal or other cations.

2. (Original) A material according to claim 1, wherein M is chosen from all of the other first row transition metals: Ti, V. Cr, Fe, Co, Ni and Cu, and other cations with appropriate sized ionic radii: Al, Mg, Mo, W, Ta, Si, Sn, Zr, Be, Ca, Ga, and P, but is not solely Ni.

3. (Original) A material according to claim 1, wherein M is one or more transition metal or other cations chosen from the other first row transition metals: Ti, V. Cr, Fe, Co, Ni and Cu, and other metal cations such as Al, Mo, W, Ta, Ga and Zr.

4. (Original) A material according to claim 1, wherein M is one or more transition metal or other metal cations chosen from the first row transition metals and Al.

5. (Amended) The use of a material according to claim 1 ~~any of the preceding claims~~, as positive electrode in a non-aqueous lithium cell or battery, such as a lithium ion cell.

6. (Original) A process for making a material of formula $Li_xMn_yM_{1-y}O_2$, wherein $x \leq 0.2$, $0 < y < 2$, Mn is Mn+4 and M is one or more transition metal cations or other cations, comprising providing a starting material of formula $Li_{1+x}Mn_yM_{1-y}O_2$, wherein x is equal to or greater than 0, and M is one or more transition metal or other cations, as a cathode in a lithium ion cell, and charging the cell to a high voltage.

7. (Original) A process according to claim 6, wherein M is chosen from all of the other first row transition metals: Ti, V. Cr, Fe, Co, Ni and Cu, and other cations with appropriate sized ionic radii: Al, Mg, Mo, W, Ta, Si, Sn, Zr, Be, Ca, Ga, and P, but is not solely Ni.

8. (Original) A process according to claim 6, wherein M is one or more transition metal or other metal cations chosen from the other first row transition metals: Ti, V. Cr, Fe, Co, Ni and Cu, and other cations such as Al, Mo, W, Ta, Ga and Zr.

9. (Original) A process according to claim 6, wherein M is one or more transition metal or other metal cations chosen from the first row transition metals and Al.

10. (Amended) A process according to claim 6 ~~any of claims 6 to 9~~, wherein the voltage is in the range of 4.4 to 5 volts.